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| DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE FOOD AND DRUG ADMINISTRATION | | DOMESTIC LOW-ACID CANNED FOODS RETORT DATA SHEET (Processing in Steam in Still Retorts (21 CFR 113.40(a))) | |
| INSTRUCTIONS Give all pipe sizes as inside diameter (ID) · Cross-sectional area = $3.14r^2$ (r = 1/2 diameter). | | | |
| FIRM NAME | | FCE NO. | INSPECTION DATE(S) |
| RETORT DESCRIPTION | | | |
| RETORT NO. | KIND OF RETORT <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL | LENGTH OR HEIGHT | DIAMETER |
| IF A VERTICAL RETORT, ARE THERE BOTTOM CRATE SUPPORTS? <input type="checkbox"/> YES <input type="checkbox"/> NO | | ARE BAFFLE PLATES ABSENT IN THE BOTTOM? <input type="checkbox"/> YES <input type="checkbox"/> NO | |
| ARE THERE ANY PROTRUSIONS INSIDE THE RETORT OR THE RETORT DOOR CASING WHICH COULD DAMAGE CONTAINERS DURING LOADING/ UNLOADING OF CRATES? <input type="checkbox"/> YES <input type="checkbox"/> NO | | | |
| MERCURY THERMOMETER | | | |
| ARE SCALE DIVISIONS EASILY READABLE TO 1°F? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | |
| NUMBER OF DEGREES F PER INCH OF GRADUATED SCALE | | DATE LAST TESTED FOR ACCURACY | |
| STANDARD USED FOR THE TEST | | | |
| NAME AND TITLE OF PERSON WHO PERFORMED TEST | | | |
| IS THE LAST TEST DATE IDENTIFIED ON THERMOMETER? <input type="checkbox"/> YES <input type="checkbox"/> NO | | IS THE MERCURY UNDIVIDED? <input type="checkbox"/> YES <input type="checkbox"/> NO | |
| IS THE THERMOMETER LOCATED WHERE IT IS EASY TO READ ACCURATELY? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | |
| THE BULB IS INSTALLED IN THE <input type="checkbox"/> RETORT SHELL <input type="checkbox"/> EXTERNAL SHELL | | | |
| DIAMETER OF OPENING TO EXTERNAL WELL | | BLEEDER SIZE | |
| IS BLEEDER STEAM EMITTED CONTINUOUSLY DURING PROCESSING? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | |
| IF A MUFFLER IS USED, WHAT EVIDENCE DOES THE FIRM HAVE THAT IT DOES NOT RESTRICT FREE FLOW? <i>(See 113.87(g))</i> | | | |
| IS THE MERCURY THERMOMETER USED AS THE REFERENCE INSTRUMENT DURING PROCESSING? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | |
| TEMPERATURE RECORDER | | | |
| TYPE OF TEMPERATURE RECORDER | | | |
| IS THERE ANY DIFFERENCE BETWEEN RECORDING AND MERCURY THERMOMETER READINGS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHAT IS THE DIFFERENCE IN °F? _____ | | | |
| IF THERE IS A DIFFERENCE, IS THE MERCURY OR RECORDING THERMOMETER HIGHER? | | | |
| WHAT IS THE MEANS OF PREVENTING UNAUTHORIZED ADJUSTMENTS ? <i>(e.g. lock or notice)</i> | | | |
| WHAT ARE THE RECORDING CHART SPECIFICATIONS? | | | |
| IS THE CHART DRIVE TIMING MECHANISM ACCURATE? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | |
| IS THE RECORDER COMBINED WITH STEAM CONTROLLER? <input type="checkbox"/> YES <input type="checkbox"/> NO | | | |
| THE BULB IS INSTALLED IN THE <input type="checkbox"/> RETORT SHELL <input type="checkbox"/> EXTERNAL WELL | | | |

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| FIRM NAME | | CF NO. | | INSPECTION DATE(S) | |
| GIVE BLEEDER SIZE <i>(if applicable)</i> | | | | | |
| IS BLEEDER STEAM EMITTED CONTINUOUSLY DURING PROCESSING? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | | | |
| IF MUFFLER IS USED, WHAT EVIDENCE DOES THE FIRM HAVE THAT IT DOES NOT RESTRICT FREE FLOW? <i>(See 113.87(g))</i> | | | | | |
| IF IT IS AIR-OPERATED, DOES THE TEMPERATURE CONTROLLER HAVE AN ADEQUATE FILTER SYSTEM TO INSURE A SUPPLY OF CLEAN, DRY AIR? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | | | |
| PRESSURE GAGE | | | | | |
| NOTE: THIS IS NOW A RECOMMENDATION, RATHER THAN A REQUIREMENT OF THE REGULATIONS. IF A PRESSURE GAGE IS PRESENT, IS IT GRADUATED IN DIVISIONS OF 2 LBS. OR LESS? <input type="checkbox"/> YES <input type="checkbox"/> NO | | | | | |
| AUTOMATIC STEAM CONTROLLER | | | | | |
| TYPE OF VALVE | | | SIZE OF VALVE | | |
| IS THE STEAM CONTROLLER TEMPERATURE OR PRESSURE ACTUATED? | | | | | |
| STEAM INLET(S) | | | | | |
| ARE STEAM INLET(S) LOCATED OPPOSITE VENT? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | | | |
| ID(S) OF SMALLEST RESTRICTION(S) STEAM INLET LINES | | | CALCULATED CROSS-SECTIONAL AREA(S) OF SMALLEST RESTRICTIONS | | |
| STEAM SPREADERS | | | | | |
| DESCRIBE THE SHAPE AND DIMENSIONS | | | | | |
| IF THE RETORT IS OVER 30 FEET LONG, ARE THERE TWO STEAM INLETS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, HOW MANY ARE THERE? | | | | | |
| LOCATION OF SPREADER PERFORATIONS | | NUMBER OF PERFORATIONS | | DIAMETER OF PERFORATIONS | |
| WHAT IS THE CALCULATED TOTAL CROSS SECTIONAL AREA OF THE PERFORATIONS? | | | | | |
| IS THIS AREA 1-1/2 TO 2 TIMES THE (TOTAL) CROSS-SECTIONAL AREA(S) OF THE SMALLEST RESTRICTION(S) IN THE STEAM INLET LINE(S)? <input type="checkbox"/> YES <input type="checkbox"/> NO | | | | | |
| BLEEDERS | | | | | |
| NUMBER OF BLEEDERS | | SIZE(S) | | LOCATION(S) | |
| ARE THEY OBSERVABLE DURING OPERATION? <input type="checkbox"/> YES <input type="checkbox"/> NO | | | | | |
| ARE THEY WIDE OPEN DURING ENTIRE PROCESS, INCLUDING COME-UP TIME? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | | | |
| IF A MUFFLER IS USED, WHAT EVIDENCE DOES THE FIRM HAVE THAT IT DOES NOT RESTRICT FREE FLOW? <i>(See 113.87(g))</i> | | | | | |
| AIR OR WATER COOLING LINE VALVES | | | | | |
| IS WATER OR AIR UNDER PRESSURE USED FOR COOLING? <input type="checkbox"/> WATER <input type="checkbox"/> AIR | | | | | |
| WHAT IS THE VALVE TYPE? | | | | | |
| VENTS | | | | | |
| NUMBER OF VENTS | | SIZE(S) | | LOCATION(S) | |
| WHAT IS THE VALVE TYPE? <input type="checkbox"/> GATE <input type="checkbox"/> PLUG COCK <input type="checkbox"/> OTHER <i>(Specify)</i> _____ | | | | | VALVE SIZE(S) |
| ARE VENTS FULLY OPEN DURING VENTING? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | | | |
| ARE VENTS LOCATED OPPOSITE THE STEAM INLET? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN | | | | | |

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| FIRM NAME | CF NO. | INSPECTION DATE(S) |
| VENTS (cont'd) | | |
| WHAT IS THE MANIFOLD VALVE TYPE <i>(if applicable)</i> <input type="checkbox"/> GATE <input type="checkbox"/> PLUG COCK <input type="checkbox"/> OTHER <i>(specify)</i> _____ | | |
| MANIFOLD DIAMETER AND CROSS-SECTIONAL AREA | NUMBER OF CONNECTING VENTS | |
| DIAMETER(S) OF CONNECTING VENTS | | |
| WHAT IS THE CALCULATED TOTAL CROSS-SECTIONAL AREA OF ALL CONNECTING VENTS? | | |
| IS THIS LARGER THAN THE CROSS-SECTIONAL AREA OF THE MANIFOLD? <input type="checkbox"/> YES <input type="checkbox"/> NO | | |
| DOES THE VENT, MANIFOLD OR MANIFOLD HEADER BREAK TO THE ATMOSPHERE? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHERE? | | |
| DIAMETER AND CROSS-SECTIONAL AREA OF MANIFOLD HEADER <i>(if applicable)</i> | | |
| DIAMETER(S) AND TOTAL CROSS SECTIONAL AREA OF CONNECTING MANIFOLDS FROM ALL RETORTS VENTING SIMULTANEOUSLY. | | |
| IS THE MANIFOLD HEADER CROSS-SECTIONAL AREA AT LEAST EQUAL TO THIS AREA? <input type="checkbox"/> YES <input type="checkbox"/> NO | | |
| IS THERE ANY VALVE ON THE MANIFOLD HEADER? <input type="checkbox"/> YES <input type="checkbox"/> NO | | |
| DO VENTING ARRANGEMENTS AND METHODS COMPLY WITH ONE OF THE EXAMPLES IN 113.40(a)(12)? <div style="text-align: right;"><input type="checkbox"/> YES <input type="checkbox"/> NO</div> | | |
| IF NO, DOES THE FIRM HAVE HEAT DISTRIBUTION DATA OR SUITABLE DOCUMENTATION THAT APPROPRIATE TESTS HAVE BEEN PERFORMED? <input type="checkbox"/> YES <input type="checkbox"/> NO <i>(See 113.40(a)(12)(iii))</i> | | |
| IF VENTS ARE EQUIPPED WITH MUFFLERS, SPECIFY TYPE AND PERFORMANCE CHARACTERISTICS | | |
| DOES THE FIRM HAVE EVIDENCE THAT THE MUFFLER ALLOWS ADEQUATE VENTING? <i>(See 113.87(g))</i> | | |
| REMARKS <i>(Provide additional descriptive or explanatory information here. For unusual or very complicated equipment, you may wish to include a rough diagram.)</i> | | |